


# Benefits of physical activity for children with autism

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### ABSTRACT

Physical activity has a positive benefit on the quality and lifestyle of people, which means that its practice and influence on individuals with Autism Spectrum Disorder may be essential. The aim of the study was to optimize the relationship between them and the rest of the people with the same age at school, daily life and family and to reduce some of the typical repetitive behaviours of this disorder. We used a case study with a structured observation, the questionnaire was giving over a period of 5 months, from September 2016 to February 2017, to six subjects. The selected sample was school children aged 8 to 17 years old diagnosed with Autism Spectrum Disorder. The students show evident physical and psychologist progress, but unequal due to the big cognitive differences; not all of them reach social advances. Physical exercise seems to improve the individual's body and social skills, although this conclusion should be confirmed with researches with a higher number of individuals and a longer follow-up. **Key words:** AUTISM SPECTRUM DISORDER (ASD), PHYSICAL ACTIVITY, REPETITIVE BEHAVIORS.

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## INTRODUCTION

Nowadays, and over the last few decades, disability has acquired a relevant place in the social, health and educational scenarios. It is a concept that is familiar, both because of the medical and legislative advances that are gradually increasing the quality of life of people with disabilities and their families, and because of the evolution of services aimed at this group. These services are no longer focused on their most basic needs but open up a world of possibilities in the field of leisure and sport for people with Autism Spectrum Disorder (ASD). Many of the addressees are turning to a schooling model that does not consider Physical Education as a major subject in its programming, so it was considered convenient to create a proposal to make up for this lack.

It was considered that one of the purposes of physical activity (PA from now on) is the integral development of the person through his or her motor competence, for which reason it was proposed that not only progress at the physical level be achieved, but that it be used as a means to work on social competence and personal autonomy. To this end, a proposal for intervention was drawn up with activities to be carried out during the first quarter of the school year 2015/2016.

### ***Theoretical framework***

The theoretical framework of this intervention is based on the relevance of physical activity in young people with ASD. Physical activity is one of the fundamental pillars for a healthy lifestyle and therefore must take into account the particularities of each individual.

To properly understand the essence of this intervention it is necessary to delve into the concepts of Autism Spectrum Disorder, physical activity, adapted physical activity.

### ***Autism Spectrum Disorder***

The American Psychiatric Association defines Autism Spectrum Disorder (ASD) as a developmental disorder that can cause problems with thinking, feeling, language, and ability to relate to others ().

Until a few decades ago, the term "autism" was simply used, first coined in the 1940s. A number of characteristics were then listed that referred to children diagnosed as having certain common behaviours, including "an excessive desire to keep everything the same, communication difficulties and a very high cognitive potential ()".

ASD is one of the most severe distortions of human development, which qualitatively influences the normal growth of the child (). Autism was defined as "a major impairment of the ability to establish a system of relationships and communication, as well as a profound lack of development of imagination and empathy ()".

Although the disorder encompasses a wide range of characteristics that vary from individual to individual, it is true that it is possible to list some that are shared, to a greater or lesser degree, and that all people within the spectrum have difficulties specified in the triad of Wing's abilities that affect the social, communication and imagination areas ().

Although the concept is young, its evolution has been fleeting and its transformation has been continuous. Therefore, contemporary people of our century are already beginning to define it as a Generalized Developmental Disorder (now replaced by the term ASD), whose main symptom is unusual behaviour in children characterized mainly by alterations in social communication and cognitive development.

It is important to point out that the concept of ASD should be understood as a "continuum" not as a defined and closed disease, but as a malleable term according to the particularities of each individual. It can be said that the disorder has two extremes, from the mildest alteration, Asperger's Syndrome, to the most serious, considered to be classic autism ().

### *Adaptive Physical Activity*

Physical exercise is essential for everyone, but when it comes to children and young people with disabilities (regardless of type), it becomes even more important. There are three categories for classifying the benefits of physical activity, we will focus on one that is of particular interest to us: "the behavioural aspect of the habit of practicing healthy physical activity that is maintained into adulthood ()".

In order to remove the barriers that prevent people from participating in certain physical activities, it is necessary to emphasise the changes that should be made to equipment, personal resources or infrastructure resources. In this way, adapted physical activity is understood as a practice that seeks to solve the individual differences that exist between people with disabilities and that prevent or hinder the execution of physical activity.

Disabled sportsmen and women score higher than non-disabled people in terms of social integration and social affectivity, as a reason for practicing sport (). The therapeutic importance of physical activity is the fundamental role in the physical, psychological and social well-being of persons with disabilities ().

## **OBJECTIVES**

Three general objectives were formulated:

1. Optimize the physical activity practice of the regular group of young people with ASD.
2. Use Physical Activity as a tool to work on your social competence and personal autonomy.
3. Reduce some of the stereotypical behaviours of the disorder that are present in users.

## **PROCEDURE AND SAMPLE**

The intervention focused on a regular group of 6 users with ASD between the ages of 8 and 17, linked to the Canary Islands Association of People with Generalized Developmental Disorders (ACTRADE)... All of them have basic objectives and competencies of the Primary Education levels, although all of them had different needs and intervention strategies that were flexible from one to the other. All of them attended at least once a week the scheduled activity.

Here is the execution of the first phase from October to December during sessions of between two and four hours duration. The group consists of a girl and five boys, whose relevant characteristics are set out below:

### **Child1**

- Age: 13 years old.
- Schooling: Specific Centre.
- Autonomy: Sphincters controlled.
- Driveability: Normal.
- Communication system: The pictograms are being worked on.

- Behaviours to be taken into account: Self-injury, do not take orders at the first attempt. Answer: Positive reinforcement.
- Reinforcement: Balls and water activities.

**Child2**

- Age: 17 years old.
- Schooling: Ordinary school, classroom enclave.
- Autonomy: Totally autonomous, oral language.
- Driveability: Normal.
- Behaviours to consider: Rigidity to change, continuous repetition of film dialogues.
- Reinforcement: Pay attention to your conversations.

**Child3**

- Age: 13 years old.
- Schooling: Specific school.
- Autonomy: Control of sphincters, peeing on them peeing on them.
- Driveability: Normal.
- Communication system: sounds or signs (depending on the receiver).
- Behaviours to consider: Self-injury, fears, gastric problems, self-stimulation.
- Reinforcement: Food, see photos, caresses.

**Child4**

- Age: 8 years old.
- Schooling: Specific Centre.
- Autonomy: Does not control sphincters, helps in daily tasks, learning to swim.
- Driveability: Normal.
- Communication system: None.
- Behaviours to consider: Compulsive eye-scratching, frustration at lack of communication resources, fearful of some stimuli.
- Reinforcement: Use your mobile phone, cuddle, hold it in your arms.

**Child5**

- Age: 11 years old.
- Schooling: Specific Centre.
- Autonomy: Does not control sphincters, eats and dresses alone.
- Driveability: Normal.
- Communication system: Any loose words or signs.
- Behaviours to consider: attention-grabbing behaviours, constant play.
- Reinforcement: tickling, water games, painting.

**Child6**

- Age: 13 years old.
- Schooling: Specific Centre.
- Autonomy: Totally autonomous.
- Motor skills: Normal, but with general hypotonia.
- Communication system: Functional oral language.
- Behaviours to be taken into account: He's very apt to help, Epilepsy.

- Reinforcement: Reading, verbal reinforcement, park

## METHOD

An observational record based on record tables with specific objectives per session is primarily used. Each table is individualized and personalized, that is, each child has their own objectives to achieve within that same session. There are common objectives for all that should be acquired at the end of the quarter (in December) and other individual objectives. This card also has a section on incidences, in which abnormal behaviour or a retreat/regression to habits or rituals already eliminated were noted, etc.

Due to the lack of homogeneity that characterizes this group, a set of activities was created to meet the needs of each individual so that the intervention was already inclusive and suitable for everyone; therefore, within this design there was no room for a second personalized adaptation.

## RESULTS

Due to the heterogeneous characteristics of the subjects of this intervention, the results are organized by user, so that six different descriptions/results are obtained.

### **Child 1**

This child had quite positive results in terms of optimising and improving her physical activity practice. In all the activity blocks you get several times the maximum score in some objective related to the execution of physical exercises. There are no serious behaviour problems. It is possible to reduce the use of the ball outside the sport activity. Between the hiking and the pre-sport activity sessions he understood that the ball in this space is a reinforcement. Interaction with peers and monitors is not improved in any of the sessions.

### **Child 2**

Child 2 was absent during two sessions of pre-sport activities and does not attend any of the hikes, so the objectives in the basketball activities session are not comparable to a before and after. However, there are good results in the physical objectives of canoeing and climbing. Despite this, there is no improvement in social interaction, during all the sessions he continues with his echolalia and his conversations almost always decontextualized.

### **Child 3**

This child has obstacles with the execution of direct instructions. It does not make adequate progress on either physical or social improvement objectives. Its results, although with some punctual apex, remain constant. He has clear interests, and the practice of directed sport does not enter them; this can be seen in the fact that in hiking, sessions in which if he puts his will, he wins and enjoys with a very good attitude, because walking is something he is passionate about. There was one canoeing session in which no results were obtained, as it was interrupted by disruptive behaviour.

### **Child 4**

Child 4 obtained very good results, with an exponentially positive evolution over these two months. In the objectives related to physical activity, there are clear advances and advances in all the sessions. In the social part, there are also improvements in the interaction with the monitors and with their peers.

**Child 5**

The results of this child are not too conclusive and is that it has constant increases and decreases in the achievement of objectives. In one of the canoeing session obtained very low results because it affected the behaviour of his partner, who was watching and imitating the time they were together. He has good physical capacity that needs to be strengthened. The sessions he enjoys most are those of climbing and this is reflected in the results of the common objectives.

**Child 6**

Despite being the only one who has a motor difficulty (general hypotonia and something else). The child is a child who has almost unbeatable results. He has an enormous capacity for self-improvement and this is reflected in his work in all the sessions. Their progression is good in terms of both physical and social objectives. She has contextualized oral language, which has helped her to know her interests and her liking for the activities that are carried out.

**CONCLUSIONS**

The execution of this intervention has meant a significant improvement in the optimization and increase in the practice of physical activity for this specific group and is that all recipients improve to a greater or lesser extent (the level of success varies in each user) in some aspect of their body skills related to the gross motor skills of the arms, balance and coordination. In certain cases, the objectives have been set downwards, underestimating the abilities of the subjects, since two of them achieve the maximum score of the objectives related to physical abilities in most of the sessions.

In addition, it has been possible to create a cooperative atmosphere in the group, since one of the boys was a natural support of the younger user; he was concerned about him, asked about him if he had not arrived at the session.... He also specified that, in general, the improvement of social interaction has not been effective. Taking into account the characteristics of the individuals with whom we work, it is felt that the objectives set in relation to this issue have been too ambitious. Therefore, the demand for this set of social skills objectives will be reduced.

Also, very valuable is the information that has been gathered about the acquisition of exclusive habits of physical activity practice. With the continuous repetition of certain habits, it has been possible to create a routine around physical activity.

As a final conclusion, it is considered that two and a half months is a short period of time to see notable benefits, so it is proposed to continue this proposal for intervention in a similar line to that followed so far, adapting and raising even more sensibly the individual objectives of each children.

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